

Credit Rating Score Calculation

The sovereign credit rating score is calculated using the following equation:

$$\ln(R_t) = c + X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + \varepsilon_t \quad (1)$$

Where:

- $\ln(R_t)$ is the natural logarithm of the numerical credit rating score
- c is the intercept (constant)
- Variables and their coefficients (from S&P ratings):
 - X_1 (Political Stability): 1.290
 - X_2 (ln GDP): 0.000
 - X_3 (Inflation Rate): -14.819
 - X_4 (ln Corruption Index): 0.113
 - X_5 (Government Debt to GDP): -2.191
 - X_6 (ln GDP per Capita PPP): 0.000
 - X_7 (Trade Balance to GDP): -2.044
 - X_8 (Unemployment Rate): -24.262
 - X_9 (Foreign Debt to GDP): 0.198
- Intercept (c): 13.584
- ε_t is the error term

Therefore, the complete equation for S&P rating would be:

$$\begin{aligned} \ln(\text{Credit Rating Score}) = & 13.584 + 1.290X_1 + 0.000X_2 - 14.819X_3 + 0.113X_4 \\ & - 2.191X_5 + 0.000X_6 - 2.044X_7 - 24.262X_8 + 0.198X_9 \end{aligned} \quad (2)$$

To obtain the final Credit Rating Score:

1. Calculate the result of this equation
2. Take e (exponential) to the power of the result since we used natural logarithm
3. Round to the nearest whole number
4. Compare with Table 1 to get the corresponding rating grade

For Kuwait:

- Actual S&P rating: 21 (AA)
- Estimated rating: 17.55 (A-)
- Difference: 3.45 notches overrated